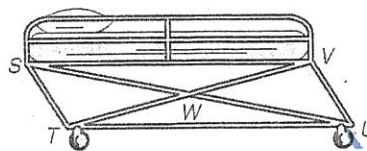


LESSON
6-2

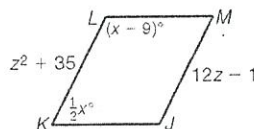
Practice
Properties of Parallelograms

A gurney is a wheeled cot or stretcher used in hospitals. Many gurneys are made so that the base will fold up for easy storage in an ambulance. When partially folded, the base forms a parallelogram. In $\square STUV$, $VU = 91$ centimeters, $UW = 108.8$ centimeters, and $m\angle TSV = 57^\circ$. Find each measure.



- | | | |
|---|---|--|
| 1. SW
<u>108.8 cm</u> | 2. TS
<u>91 cm</u> | 3. US
<u>217.6 cm</u> |
| 4. $m\angle SVU$
<u>123°</u> | 5. $m\angle STU$
<u>123°</u> | 6. $m\angle TUV$
<u>57°</u> |

$JKLM$ is a parallelogram. Find each measure.



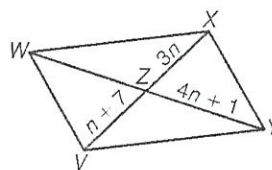
$$\frac{1}{2}x + x - 9 = 180$$

$$\frac{3}{2}x = 189 \left(\frac{2}{3}\right)$$

$$x = 126^\circ$$

- | | | |
|---|--|--------------------|
| 7. $m\angle L$
<u>117°</u> | 8. $m\angle K$
<u>63°</u> | 9. MJ
<u>71</u> |
|---|--|--------------------|

$VWXY$ is a parallelogram. Find each measure.



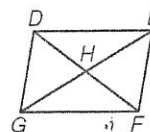
- | | |
|---------------------|-----------------------|
| 10. VX
<u>21</u> | 11. XZ
<u>10.5</u> |
| 12. ZW
<u>15</u> | 13. WY
<u>30</u> |

14. Three vertices of $\square ABCD$ are $B(-3, 3)$, $C(2, 7)$, and $D(5, 1)$. Find the coordinates of vertex A.

$(0, -3)$; $(10, 5)$
or $(-6, 9)$

Write a two-column proof.

15. **Given:** $DEFG$ is a parallelogram.
Prove: $m\angle DHG = m\angle EDH + m\angle FGH$

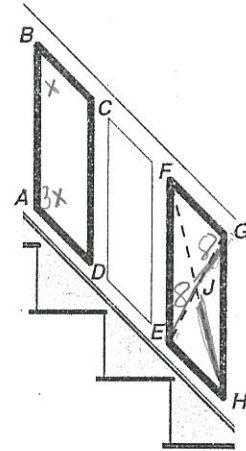


LESSON
6-2

Problem Solving
Properties of Parallelograms

Use the diagram for Exercises 1 and 2.

The wall frames on the staircase wall form parallelograms $ABCD$ and $EFGH$.



$2x + 4 = 16$
 $2x = 12$
 $x = 6$

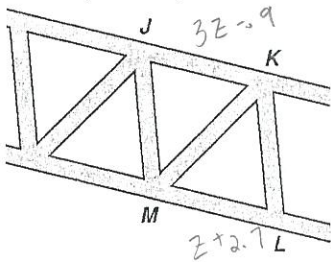
1. In $\square ABCD$, the measure of $\angle A$ is three times the measure of $\angle B$. What are the measures of $\angle C$ and $\angle D$?

$m\angle C = 135^\circ$; $m\angle D = 45^\circ$

2. In $\square EFGH$, $FH = 5x$ inches, $EG = (2x + 4)$ inches, and $JG = 8$ inches. What is the length of JH ?

15 in.

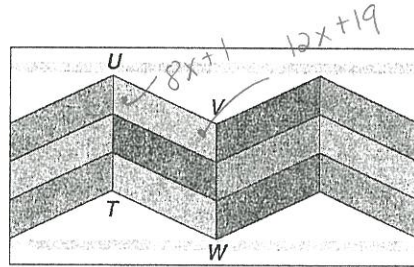
3. The diagram shows a section of the support structure of a roller coaster. In $\square JKLM$, $JK = (3z - 0.9)$ feet, and $LM = (z + 2.7)$ feet. Find JK .



$3z - 0.9 = z + 2.7$
 $2z = 3.6$
 $z = 1.8$

4.5 ft

4. In $\square TUVW$, part of a ceramic tile pattern, $m\angle TUV = (8x + 1)^\circ$ and $m\angle UVW = (12x + 19)^\circ$. Find $m\angle TUV$.



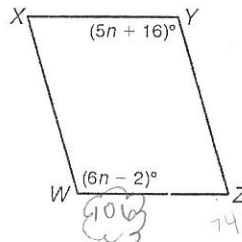
$20x + 20 = 180$
 $20x = 160$
 $x = 8$

65°

Choose the best answer.

5. What is the measure of $\angle Z$ in parallelogram $WXYZ$?

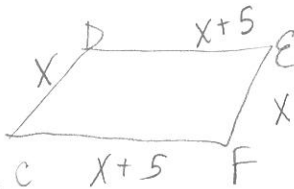
- A 18°
B 74°
C 106°
D 108°



$5n + 16 = 6n - 2$
 $18 = n$

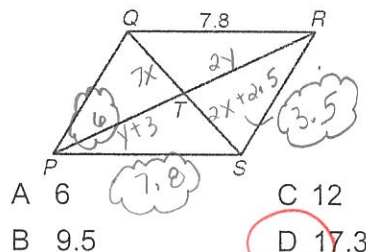
6. The perimeter of $\square CDEF$ is 54 centimeters. Find the length of \overline{FC} if \overline{DE} is 5 centimeters longer than \overline{EF} .

- F 11 cm
G 14 cm
H 16 cm
J 44 cm



$4x + 10 = 54$
 $4x = 44$
 $x = 11$

7. In $\square PQRS$, $QT = 7x$, $TS = 2x + 2.5$, $RT = 2y$, and $TP = y + 3$. Find the perimeter of $\triangle PTS$.



$2y = y + 3$
 $y = 3$
 $7x = 2x + 2.5$
 $5x = 2.5$
 $x = .5$

- A 6
B 9.5
C 12
D 17.3

9.5
 7.8
 17.3